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BOTANICAL NEWS.—Botanists will be interested in the portion of Sir J. D. Hooker's recent anniversary address as president of the Royal Society of London, which appears in *Nature* for Dec. 5th. He reviews Comte Gaston de Saporta's essay entitled *L'Ancienne Végétation Polaire*, in which the author takes the ground that life first appeared in the northern circumpolar area of the globe, and that this was the birthplace of the first and of all subsequent floras; the initial conditions of terrestrial life following upon the emergence of the earlier stratified rocks from the Polar ocean.

Among recent botanical works are Heer's *History of Vegetation in Switzerland*, and Christ's *Das Pflanzenleben in der Schweiz*.

The forthcoming eleventh report of the U. S. Geological and Geographical Survey of the Territories, in charge of Prof. Hayden, will contain the reports of Sir J. D. Hooker and Prof. Asa Gray on the results of their botanical explorations in the western Territories in connection with this survey.

Trimen's *Journal of Botany* for December contains an article on the pro-embryo of *Chara*, an essay in morphology, by S. H. Vines.

In the *Bulletin* of the Torrey Botanical Club for November, Dr. Asa Gray records two remarkable forms of *Trillium*. Mr. C. G. Pringle notices some north-eastern plants; and the discovery of a truffle new to the North American flora, by Mr. W. R. Gerard, is recorded.

A Catalogue of North American Ferns (north of Mexico) in the Davenport Herbarium of the Massachusetts Horticultural Society is to be issued by Mr. George E. Davenport, 8 Hamilton Place, Boston, Mass., provided that he can obtain a sufficient number of subscribers to meet the expense. The price will not exceed fifty cents.

In the *Botanical Gazette* for December, Dr. George Vasey adds to and corrects the catalogue of the forest trees of the United States. Mr. Thomas Meehan writes concerning *Cassia nicticans*. J. R. Lowrie gives a list of the trees and plants inhabiting a plantation which has been protected, for a series of years, both from the inroads of cattle and the labor of farmers.

ZOÖLOGY.¹

THE BREEDING HABITS OF THE EEL—A CORRECTION.—Farther examinations of additional specimens of the eel, convince me that an error as to the sex of the eel was made in my article in the January *NATURALIST*. The motile bodies whose active movements misled me were not spermatozoa, but yolk particles, with an unusually marked Brownian motion. The male sex has yet

¹The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.

to be discovered. It should be said that the subject is one presenting great difficulties, as formerly stated by Burnett. The spermatic particles of the perch and smelt, are exceedingly minute, about $\frac{1}{100.000}$ inch in diameter, and in these we have thus far found it impossible to detect the "tails" with a $\frac{1}{8}$ inch objective.

I have been informed by John Sears, of Danvers, Mass., that he found young eels, somewhat less than an inch in length, with the yolk-sac still attached, at the mouth of a shallow brook running into salt water at Danvers. This was during the month of March; the season was earlier than usual, the ice having broken up in February. This would indicate that the parent eel must have spawned in December. As Mr. Sears is an observing field naturalist, and has noticed the breeding habits of other fish, we suppose him to be correct in the identification of the young eel. We would inquire whether any one else has ever observed eels so young and small as these, and with the yolk-sac still attached.

Mr. Sears informs us, that at Danvers the trout begins to spawn in January, beginning then to make the shallow holes in gravelly places. He has noticed perch spawning in midwinter, in ponds in shallow water, their movements being observed through the ice; at this time the fins become red on the edges. On the other hand, the bream spawns in spring and summer. The horned pout, he says, breeds in holes in the gravel in midsummer.—A. S. Packard, Jr.

A GALL-INHABITING ANT.—The empty dwellings of many animals furnish suitable abodes for others. The abandoned shell upon the beach finds an eager house-hunter in the hermit-crab; shells of *Helices* are sought by various European mason-bees and wasps as a fitting place in which to build their cells; two species have been found in New England to choose the concave vault of the oak-apple for the same purpose.

I can now record two instances in which galls have been chosen by an ant, *Stenamma gallarum* n. sp., as the home of the colony. The first colony observed was in a gall of *Gelechia gallæ-solidaginis* Riley, upon a dead but unbroken stalk of golden-rod. From pupæ found in this gall on the 31st of May, and placed in a vial under the care of a few workers, there matured three females, one upon each of the following days: June 20th and 23d, and July 7th. The second colony was found while upon an excursion with Mr. K. Mitsikuri, on the 22d of May, 1878, in a fallen gall of *Cynips spongifica* O. S. It was more populous than the other colony, and occupied the central cell, as well as the space between the kernel and the shell of the gall. Except the queen, who was without wings, the community consisted of workers and larvæ only.¹—W. H. Patton.

¹*Stenamma gallarum* n. sp.

Female.—Yellowish; head, scutellum and petiole above, and incisures of thorax darker; eyes, and spot at insertion of wings, black; the segments of the abdomen with dark-brown borders, the border on the first segment broad. Length, 3 mm.

Dried specimens become darker colored. Three pinned ♀ present the following

A HUMMER'S MEAL.—Mr. A. R. Wallace, in a recent number of the *Fortnightly Review*, says, concerning the tongues of hummers: "This tubular and retractile tongue enables the bird to suck up honey from the nectaries of flowers, and also to capture small insects; but whether the latter pass down the tubes, or are entangled in the fibrous tips and thus drawn back into the gullet, is not known."

Mr. Wallace's remark led to some investigations during the past summer, the results of which do not entirely agree with his statement. Two hummers were attracted to the house by a saucer of syrup placed on the window-sill. Each day they would come and satisfy their hunger. In each instance they would alight on the edge of the saucer, and lap up the syrup as a dog would lap water. The question as to whether insects "pass down the tubes or are entangled in the fibrous tips and are thus drawn back into the gullet," was also solved. Insects too large to pass through these tubes being placed in their way, the birds were observed to take them as readily as smaller ones. The insects were evidently secured by adhesion to the saliva of the tongue-tips, and thence drawn into the gullet. In my opinion, these tubes of the tongue connect with the lungs rather than with the abdomen. These experiments were abruptly terminated, one day, by the approach of a third hummer, a male, who drove the others from the window, and in a fit of rage darted at one of the pair, thrust its bill well through its body, and both fell dead on the ground.—*W. H. Ballou, Evanston, Ill.*

RECENT PAPERS ON CRUSTACEA.—From Mr. W. N. Lockington we have two papers on Crustacea—"Remarks on the Thalassinidea and Astacidea of the Pacific Coast of North America" (*Annals and Magazine of Nat. Hist.*, Oct., 1878), and "On the Porcellanidea of the West Coast of North America" (*ibid.*, Nov., 1878). In the first paper eight Thalassinidea and nine Astacidea are enumerated. One new species (*Gebia rugosa*) is described; *Callianidea typha* is added to our fauna (it was described by Milne

characters: Antennæ 11-jointed, joints 3-7 very short, the 8th joint a little longer, joints 8-10 with a brown annulus. Head, thorax and nodes of the petiole striate, metathorax with two stout spines, first node of the petiole with a short cariniform tooth at base beneath, second node with three very short, blunt teeth in the median line beneath. Body clothed with thinly-scattered, erect hairs; wings white, ciliate; head, thorax, and nodes, light-brown; mandibles, antennæ, and legs, pale yellow, the femora sometimes darker; abdomen, dark-brown; the bases of the segments above and the venter testaceous, the first segment with a broad yellow band at the base.

Worker.—Pale yellow, eyes black, first segment of the abdomen with two dark-brown spots above, which sometimes unite to form a broad band; the spines on metathorax more slender than in the ♀. The second node of the petiole without teeth beneath. Length, 2 mm.

The worker differs from the European *S. westwoodii* in having no spine beneath the second node of the petiole, and the species is easily distinguished by its color.

Connecticut.—Inhabiting galls of *Gelechia gallæ-solidaginis* Riley, and *Cynips spongifica* O. S., and frequenting the flowers of Violet and Potentilla.

Edwards from New Ireland). In regard to the Genus *Panulirus*, we would say that three of the four species mentioned (*guttatus*, *gracilis* and *americanus*) are East Coast species, and that there is no authority whatever for reporting them from the West Coast. The second paper gives an analytical key and notes upon 16 species of Porcellanidea from the West Coast, nine of which are believed to be new. *Petrolisthes armatus* (Gibbes) Stm. is also credited to the West Coast.

In "Notes on Cladocera," by E. A. Birge (Nov., 1878), we have almost the first systematic contribution to a knowledge of the American forms of this group of Crustacea. Thirty-six species are enumerated, of which twenty, and one variety, are new. A new genus (*Crepidocerus*) of the family *Lynceidæ* is also proposed.—F. S. Kingsley.

THE NEBALIAD CRUSTACEA AS TYPES OF A NEW ORDER.—The *Nebaliadæ*, represented by the existing genus *Nebalia*, have generally been considered to form a family of Phyllopod Crustacea. Metschnikoff, who studied the embryology of *Nebalia*, considered it to be a "Phyllopodiform Decapod." Besides the resemblance to the Decapods, there is also a combination of Copepod and Phyllopod characteristics. The type is an instance of a generalized one, and is of high antiquity, having been ushered in during the earliest Silurian Period, when there were, when we regard the relative size of most Crustacea, and especially of living *Nebaliæ*, gigantic forms. Such was *Dithyrocaris*, which must have been over a foot long, the carapace being seven inches long. The modern *Nebalia* is small, about half an inch in length, with the body compressed, the carapace bivalved as in Limnadia, one of the genuine Phyllopods. There is a large rostrum overhanging the head; stalked eyes; and, besides two pairs of antennæ and mouth-parts, eight pairs of leaf-like, short, respiratory feet, which are succeeded by swimming feet. There is no metamorphosis, development being direct.

Of the fossil forms, *Hymenocaris* was regarded by Salter as "the more generalized type." The genera *Peltocaris* and *Discinocaris* characterize the Lower Silurian Period, *Ceratiocaris* the Upper, *Dictyocaris* the Upper Silurian and the lowest Devonian strata, *Dithyrocaris* and *Argus* the Carboniferous Period. Our existing north-eastern species is *Nebalia bipes* (Fabricius), which occurs from Maine to Greenland.

The Nebaliads were the forerunners of the Decapoda, and form, we believe, the type of a distinct order of Crustacea, for which the name *Phyllocarida* is proposed.—A. S. Packard, Jr.

CAMPTOLÆMUS LABRADORIUS.—The first specimen of *Camptolæmus labradorius* (pied duck) known to occur in this locality was taken Dec. 12, 1878. It is interesting, as it adds one more species to the list of birds of Chemung county, N. Y., and assists in clear-

ing up the geographical distribution of species. *C. labradorius* is rare everywhere, and its occurrence so far south in the interior gives special interest to the subject.—*W. H. Gregg, M. D., Elmira, Dec. 14, 1878.*

ANTHROPOLOGY.¹

ANTHROPOLOGICAL NEWS.—Mr. W. H. Pratt sends us a brochure from the forthcoming part of the Proceedings of the Davenport (Iowa) Academy of Natural Sciences, pp. 156–162, upon the shell-beds in the vicinity of Davenport. They are not regarded as artificial, but were pushed up the bank of the river by moving ice at its breaking up in the spring.

In the *Journal* of the Cincinnati Society of Natural History, Dr. Charles L. Metz describes the pre-historic monuments of the Little Miami valley, embracing all of Columbia and portions of Anderson and Spencer townships. The paper is illustrated by a map in which the remains are indicated by means of the symbols in the Smithsonian circular. As this is the first attempt to use these signs in print in our country, Dr. Metz is to be congratulated on his success, and it is hoped that he will not let his labors cease at this point.

Stephen Barton, of Vidalia, Cal., commences, in the *Iron Age* of that place, a series of letters on the “Early History of Tulare.” While it is well to help the local press, it is also a great pity that some of the best aboriginal material ever collected in our country has been lost by publication only in the daily papers; notably the letters of Mr. Taylor, of Mr. Barton’s own State.

In the *Princeton Review* of November, Prof. John LeConte discusses man’s place in nature. We have seen a notice of a work of 304 pages, by John H. Blake, printed at the Salem press, describing a collection from the Ancient Cemetery at the bay of Chacota, Peru. As we have not seen the work, it is impossible to speak of its merits. The same is true of other anthropological publications; it is hoped that those who wish their works on anthropology noticed in these columns will send a copy to the editor of this department.

In the *Contemporary Review* for November, Mr. F. Lenormant, the distinguished Assyriologist has an article on “Books and monuments bearing upon figured representations of antiquity.”

Die Vorgeschichte des nordens nach gleichzeitigen Denkmälern, is the title of a paper in No. 43 of *Das Ausland*. In No. 41 of the same journal, is a discussion of the moral relationship between men and animals.

M. D. Kaltbrunner has published at Zurich a work entitled, “Manuel du Voyageur.” (Wurster & Co.) Three hundred pages

¹ Edited by Prof. ORIS T. MASON, Columbian College, Washington, D. C.